

REMARKS*Claim Rejections Under 35 U.S.C. § 102*

Claims 1-31, 47, 51 and 52 were rejected under 35 U.S.C. § 102(e) as being anticipated by Usui (U.S. Patent No. 6,561,633). Applicants respectfully traverse.

Claim 1 includes adhering a fluid-ejecting substrate of a fluid-ejection device to a carrier of the fluid-ejection device by drawing an adhesive between the fluid-ejecting substrate and the carrier using capillary action. This is different from Usui.

Usui (Figures 20-23 and column 13, line 21 to column 14, line 56) includes inserting a vibrating element unit 110 that includes a vibrating element 11 into an accommodating chamber 101 of a frame 100 of a recording head. An end 11a of the element 11 abuts against a thick portion 87b of an elastic plate 87 of a passage unit 13 that is adhered to a fixing portion 103 of frame 100. This forms a gap 109 between a fixing substrate 107 of vibrating element unit 110 and a sidewall 108 of accommodating chamber 101, and a gap Δg between an end 107a (shown as 109a in Figure 20) of the fixing substrate 107 and a surface of an overhang portion 105 of frame 100. Liquid adhesive is injected into a groove 106 formed on the sidewall 108, the adhesive enters a space formed by the fixing substrate 107 and the groove 106, and then penetrates into the gap Δg of the overhang portion 105 by a capillary force. The adhesive in the groove 106 penetrates also into gap 109 between the fixing substrate 107 and the sidewall 108 of the frame 100 by a capillary force, so that the adhesive enters between the entire face of the fixing substrate 107 and the sidewall 108. This is different from claim 1 in that the adhesive flows, under a capillary force, between a frame 100 of a recording head and a fixing substrate 107 of a vibrating element unit 110, not between a carrier and a fluid ejecting substrate, as in claim 1, to adhere the vibrating element unit 110 within the frame, not to adhere the fluid ejecting substrate to the carrier, as in claim 1. Therefore, Usui does not include each and every recitation of claim 1, so claim 1 should be allowed.

Claims 2-12 depend from claim 1 and are thus allowable for at least the same reason as claim 1. Therefore claims 2-12 should be allowed.

Claim 13 includes forming a gap between a first surface of a fluid-ejecting substrate of a fluid-ejection device and a second surface of a carrier of the fluid ejection device, wherein the first surface surrounds a plurality of slots in the fluid-ejecting substrate and the

second surface surrounds a plurality of channels in the carrier; and drawing an adhesive through the gap using capillary action so as to distribute the adhesive over the first and second surfaces and so that the adhesive does not flow into the slots or the channels, wherein the adhesive is for adhering the fluid-ejecting substrate to the carrier at the first and second surfaces. This is different from Usui.

Firstly, Applicants disagree with the Examiner's statement that the first surface surrounds a plurality of slots 106 where the adhesive does not flow into the slots or channels. (Office Action at page 2). Usui states that "a predetermined quantity of liquid adhesive is injected by using an injection needle or the like from the tapered portion 106a of the groove 106 formed on the side wall 108, the adhesive enters the space formed by the fixing substrate 107 and the groove 106, and then penetrates into the narrow gap Δg of the overhang portion 105 by a capillary force." (Column 14, lines 42-48). Therefore, adhesive *does* flow into groove 106 and claim 13 is allowable for at least this reason.

Moreover, there is no indication in Usui that either the gap 109 or the gap Δg is between the first surface of the fluid-ejecting substrate and the second surface of the carrier, where the first surface surrounds a plurality of slots in the fluid-ejecting substrate and the second surface surrounds a plurality of channels in the carrier, as in claim 13. Therefore, Usui does not include this recitation of claim 13, and claim 13 is allowable for this reason as well.

Claims 14-17 depend from claim 13 and are thus allowable for at least the same reason as claim 13. Therefore claims 14-17 should be allowed.

Claim 18 includes disposing a fluid-ejecting substrate of a fluid-ejection device in a recess of a carrier of the fluid-ejection device to form a gap between a first surface of the fluid-ejecting substrate and a second surface of the recess, wherein the first surface surrounds a plurality of slots in the fluid-ejecting substrate and the second surface surrounds a plurality of channels in the carrier; dispensing an adhesive into the recess; and drawing the adhesive from at least one edge of the fluid-ejecting substrate through the gap using capillary action so as to distribute the adhesive over the first and second surfaces and so that the adhesive does not flow into the slots or the channels, wherein the adhesive is for adhering the fluid-ejecting substrate to the carrier at the first and second surfaces. This is different from Usui.

As stated with respect to claim 13, Applicants disagree with the Examiner's statement that the first surface surrounds a plurality of slots 106 where the adhesive does not flow into

the slots or channels. (Office Action at page 4). Usui states that “a predetermined quantity of liquid adhesive is injected by using an injection needle or the like from the tapered portion 106a of the groove 106 formed on the side wall 108, the adhesive enters the space formed by the fixing substrate 107 and the groove 106, and then penetrates into the narrow gap Δg of the overhang portion 105 by a capillary force.” (Column 14, lines 42-48). Therefore, adhesive *does* flow into groove 106 and claim 18 is allowable for at least this reason.

Moreover, there is no indication in Usui that either the gap 109 or the gap Δg is between the first surface of the fluid-ejecting substrate and the second surface of the carrier, where the first surface surrounds a plurality of slots in the fluid-ejecting substrate and the second surface surrounds a plurality of channels in the carrier, as in claim 18. Therefore, Usui does not include each and every limitation of claim 18, so claim 18 should be allowed.

Claims 19-22 depend from claim 18 and are thus allowable for at least the same reason as claim 18. Therefore claims 19-22 should be allowed.

Claim 23 includes forming a moat in a carrier of a fluid-ejection device around a first surface of the carrier, wherein the first surface surrounds a plurality of channels in the carrier; dispensing an adhesive into the moat; bringing a fluid-ejecting substrate of the fluid-ejection device into contact with the adhesive contained within the moat, wherein the fluid-ejecting substrate has a second surface surrounding a plurality of slots in the fluid-ejecting substrate; and drawing the adhesive from at least one edge of the fluid-ejecting substrate through a gap between the first and second surfaces using capillary action in response to contacting the adhesive with the fluid-ejecting substrate so as to distribute the adhesive over the first and second surfaces and so that the adhesive does not flow into the slots or the channels, wherein the adhesive is for adhering the fluid-ejecting substrate to the carrier at the first and second surfaces. This is different from Usui.

Further as stated with respect to claim 13, Applicants disagree with the Examiner’s statement that the first surface surrounds a plurality of slots 106 where the adhesive does not flow into the slots or channels. (Office Action at pages 5-6). Usui states that “a predetermined quantity of liquid adhesive is injected by using an injection needle or the like from the tapered portion 106a of the groove 106 formed on the side wall 108, the adhesive enters the space formed by the fixing substrate 107 and the groove 106, and then penetrates into the narrow gap Δg of the overhang portion 105 by a capillary force.” (Column 14, lines

42-48). Therefore, adhesive *does* flow into groove 106 and claim 23 is allowable for at least this reason.

Moreover, there is no indication in Usui that either the gap 109 or the gap Δg is between the second surface of the fluid-ejecting substrate and the first surface of the carrier, where the second surface surrounds a plurality of slots in the fluid-ejecting substrate and the first surface surrounds a plurality of channels in the carrier, as in claim 23. Further, Usui does not include a moat, as in claim 23. Therefore, Usui does not include each and every limitation of claim 23, so claim 23 should be allowed.

Claims 24-26 depend from claim 23 and are thus allowable for at least the same reason as claim 23. Therefore claims 24-26 should be allowed.

Claim 27 includes increasing a viscosity of the multi-component fluid by drawing a component from the multi-component fluid by capillary action into one or more channels disposed in a surface, wherein increasing the viscosity acts to control the flow of the multi-component fluid by slowing or stopping the flow of the multi-component fluid. This is different from Usui. In fact, Usui does not even mention viscosity. Moreover, Usui indicates (column 14, lines 48-50) that an adhesive penetrating in a gap Δg is stopped by surface tension at an end of the gap. This is not the same as the increasing viscosity acting to control the flow of the multi-component fluid by slowing or stopping the flow of the multi-component fluid, as in claim 27. Therefore, Usui does not include each and every limitation of claim 27, so claim 27 should be allowed.

Claims 28-31 depend from claim 27 and are thus allowable for at least the same reason as claim 27. Therefore claims 28-31 should be allowed.

Claim 47 includes a fluid-ejecting substrate disposed on a carrier and fluidly and electrically coupled to the carrier; and a plurality of channels disposed in a surface of the fluid-ejecting substrate between electrical contacts of the fluid-ejecting substrate and a plurality of orifices in the surface of the fluid-ejecting substrate. This is different from Usui. Usui does not show or mention a plurality of channels disposed in a surface of the fluid-ejecting substrate between electrical contacts of a fluid-ejecting substrate and a plurality of orifices in the surface of the fluid-ejecting substrate.

Claims 51-52 depend from claim 47 and are thus allowable for at least the same reason as claim 47. Therefore claims 51-52 should be allowed.

Allowable Subject Matter

Claims 32-33 and claims 48-50 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form, including all of the limitations of the base claim and any intervening claims. Applicant has not rewritten claims 32-33 and claims 48-50. Claims 32-33 depend from claim 27 and are thus allowable for at least the same reason as claim 27. Claims 48-50 depend from claim 47 and are thus allowable for at least the same reason as claim 47. Therefore, claims 32-33 and claims 48-50 should be allowed.

Applicant acknowledges and thanks the Examiner for allowance of claims 34-46.

CONCLUSION

In view of the above remarks, Applicant believes that the claims are in condition for allowance and respectfully requests a Notice of Allowance be issued in this case. If the Examiner has any questions regarding this application, please contact the undersigned at (612) 312-2208.

Respectfully submitted,

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